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THE
NATIONAL GEOGRAPHIC MAGAZINE

Vol. XI OCTOBER, 1900 No. 10

THE LESSONS OF GALVESTON

By W J McGee

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The darkest horror of American history has fallen on our southern coast; a city comparable in population and wealth with Ephesus and Sodom of old, with Herculaneum and Pompeii of appalling memory, and with earthquake-wrecked Lisbon of later centuries, is blotted out in a night. Thirty-eight thousand people, the life and soul of a progressive and thriving city, are overwhelmed and doubly decimated by wind and wave in the darkness; literal thousands are crushed in their own falling houses or drowned in the raging waters; every survivor is made homeless, and most of them are utterly impoverished. The morning's sun rises on a scene of suffering and devastation hardly paralleled in the history of the world—a scene which has been, and will be again and again, described by tongue and pen, but never in more than a fraction or suggestion of the ghastly details. Out of the awful chaos spring the twin progeny of catastrophe, begotten of the best and the worst of humanity—Heroism, clad gloriously in helpfulness and self-abnegation, and Ghoulism, shrouded vilely in cowardice and unholy greed. For many hours the disaster is secluded by the very extent of its wreckage, but the next day brings sympathy and substantial aid in a measure unequaled in the annals of nations: the great State of Texas is stirred into noble activity; hard-pressed Federal officials turn promptly from grave political and international problems toward the stricken city on the coast, while literal millions of fellow-citizens spring to seek means of contributing to the alleviation of the lot of the sufferers. Viewed as a physical phenomenon, the destruction of Galveston was a moving spectacle; viewed in its effect on human sympathy, it was sublime beyond all precedent.

Several lessons of the Galveston horror are well worth reading and pondering:

The first lesson is the old, old one of experience summed in parable, which bans the building of a house on sand. Galveston was founded on a sand bank—a mere wave-built cay or key—made by the waves of average storms during a few centuries. Up to its highest point (less than a dozen feet above low tide) the earth of the island comprised absolutely nothing but wave-cast sand and silt, and to a depth of at least half a mile in vertical measure there is no solid rock; the strata are loose sands and silts and mud beds, nowhere firm enough to afford a sure foundation. Geologically the deposits are those of the Pleistocene Columbia formation to a depth of several hundred feet, and these are underlain by lithologically similar deposits of several Tertiary formations. The successive formations from the Columbia downward are mechanical deposits; they are not cemented with calcareous or siliceous substances, like some of the formations of the eastern Gulf coast, nor are they bound together by coralline masses like some of the West India littorals; they include little material save water-logged muds and silts, semi-solidified by pressure at depths, but nowhere lithified into firm ledges. And what is true of Galveston is measurably true of the entire western Gulf coast from Vera Cruz to the Mississippi passes; no worse coast-stretch for foundations exists in the world, and none other so bad is of anything like equal extent.

The second lesson is but the first raised from the plane of experience alone to that of recognition of natural agencies: The sand bank on which Galveston was built is something more than a simple heap of siliceous grains and dust; it is a record of past wave-work which might well have deterred the founders of the city. The most conspicuous work of waves and wind-driven sea-currents is the building of bars of sand or gravel gathered from neighboring shore-shoals or washed up from shallow bottoms; only less conspicuous is the work of those agents in carving sea-cliffs. Both modes of work are preëminently characteristic; there is not a mile of our eastern and southern coasts, from St Croix River bounding Maine to the Rio Grande beyond Texas, without one or the other of these products of sea-work. On some coast-stretches, like that of southern New Jersey, the bars and sea cliffs alternate, the one stretching across the mouths of valleys unbouchiag toward the sea, the other truncating the divides between the valleys; along higher and rocker shores, like those of

New England, the sea-cliffs predominate; but along the flatter coasts, like most of those along the Gulf, the bars—the keys of the vernacular—predominate, and are commonly separated from the mainland by sounds; so that everywhere the character of the shore is determined primarily by its height above tide, secondarily by the work of waves and sea-currents in building bars and carving cliffs. Now the important point in connection with the bar or key is the fact that it is built by waves aided by the currents, so that its height and breadth afford a fair measure of local wave-work—not of the idle ripples of the calms, not even of the breakers of lesser storms, nor yet of the great hurricanes happening by at intervals of centuries, but of the greater storms of current decades. So the crest of the key marks the reach of the great but not phenomenal tempest, and its seaward slope gives some indication of the frequency of such storms, the steeper slope attesting a more frequent wave-work; while the effect of the century-rare typhoon is rather to destroy than to build symmetric keys, such as those skirting our Gulf coast and some stretches of the Atlantic shore thence northward. Other factors, including customary tides and prevailing winds, affect this sea-work; but they are subordinate. Thus, the elongated key on which the city of Galveston stood was but a natural storm-record; and it was merely by chance of weather history that she so long survived.

It is the business of the engineer and architect to look to foundations, and to avoid the traditional house on the sand; but it is the duty of the nature-student to interpret natural records and guard against the building of houses within reach of storm waves—still more against building on the storm-records themselves. Fortunately the students of nature are now legion; the geologists and physical geographers from Harvard and Stanford, Columbia and Cornell, Yale and Chicago, and a score of other institutions of modern learning are diffusing actual knowledge with unprecedented rapidity; even the more progressive public schools, like those of Washington during the last lustrum, are substituting real knowledge for the husks of learning, and inculcating ideas of nature-work which will be of inestimable value in guiding the location of cities and bridges, railways and roads, with proper regard to natural conditions—and it is not too much to hope that every citizen of this enlightened land may soon be able to interpret such simple and self-evident nature-products as storm-built bars and keys, and that if he sees fit to build a wharf or erect a warehouse on a storm-record he will do so with his eyes open,

with clear knowledge of the risks involved, and with due precautions for the safety of the helpless and dependent in his own family and others.

There is a third lesson, less simple than the first and second, but far too important to be neglected: it is the lesson of coast subsidence, already learned by Holland and Hedgeland, and now forcing itself on Louisiana and Texas as well as New Jersey. The student who scans the shores of Atlantic and Gulf, either on the ground or on the admirable maps of the Coast and Geodetic Survey and the Hydrographic Office of our Navy, soon perceives that the relations between wave-built bars and wave-cut sea-cliffs vary from coast-stretch to coast-stretch. On the New Jersey coast the bars are beaten well back to or beyond the line of the sea-cliffs, so that the ponds or sounds behind the bars are relatively short and discontinuous; along the Florida coasts the keys stand farther out to sea, and are separated from the mainland by great elongated sounds often affording navigable waterways; while about the northern shores of the Gulf the relations of the keys to sounds are more variable. Closer study serves to interpret these variable relations: from Florida westward to Mobile Bay the keys are nearly continuous and the sounds long and narrow; thence westward to Lake Borgne the typical keys are lost, though their lines continue in a series of islands—Ship Island, Horn Island, Cat Island, etc.—separated from the mainland by the broad Mississippi Sound; still further westward a new series of keys, erratic in form and trend, appears in the Chandeleur Islands, and beyond the delta there is a corresponding (and correspondingly erratic) series of low keys stretching westward nearly or quite to Atchafalaya Bay. Now, the mainland shore of Mississippi Sound is marked by a series of small and narrow keys and sounds, evidently in process of growth, but much less advanced than those east of Mobile Bay; and these are among the evidences that along this stretch of shore the Gulf has encroached on the land to such an extent as to leave the original keys 20 to 40 miles behind. Similarly the Chandeleur keys and the corresponding series west of the delta are small and new and obviously connected with the delta building. But west of Atchafalaya Bay the coast is characterized by the absence of keys and sounds, save of the infantile sort, like those of the inland shore of Mississippi Sound; so that this shore seems incongruous with the rest, until the student discovers the long line of completely submerged keys—Sabine Bank, Trinity Shoal, Ship Shoal, etc.—in a position precisely corre-

sponding to the islands south of Mississippi Sound and forming a direct submarine connection (save as cut off by the delta) between these islands of the eastern Gulf and the well developed keys of the southern Texas shore. The position of these banks, like that of the Horn Island and its fellows, is such as to demonstrate that the waters have invaded the mainland, and that west of the delta the encroachment has been sufficient not merely to push back the shoreline 50 to 100 miles but to completely submerge the ancient keys. The most striking feature of these drowned and half-drowned keys is their symmetric arrangement; except for the interruption by the delta (with its new and lesser sand banks), the great bars form a sweeping curve regular as the beach line of a land-locked bay, and hence afford a rough measure of the outbuilding of the delta as well as of the invasion of the Gulf on its flanks. Hardly less striking than the symmetry of the series is the closeness of continuity between keys and banks; and it is a significant fact that Galveston Island is the northeastern terminus of the west-coast system of keys, the last stretch of these sand banks still rising above the level of tide.

It is the business of the geologist to detect and weigh the evidences of subsidence or elevation of coasts and to estimate the rates of movement for the guidance of local residents and investors; and it behooves such citizens to avail themselves of the scientific researches. The observations on the rise and fall of various coasts are impressive: Holland derives its name from its subsidence, coupled with the building of dikes for the protection of the land; the Island of Batavia, inhabited in the days of Tacitus, is drowned; Zuyder Zee was formed by an invasion of the sea about the end of the 13th century, and the Netherland polders (or dike protected lands) are maintained only by artificial embankments which have been raised from generation to generation until now cultivated fields lie 7 to 10 meters below tide level. The measure of the rate of subsidence of the Holland coast ranges from .03 to .75 meter per century; since 1732 the mean has been .26 meter, or nearly a foot, per century. The subsidence of the New Jersey coast was estimated at two feet per century by State Geologist Cook; it has continued so long that fresh-water cedar swamps have been submerged and the forests imbedded in saline muck, whence it is a profitable business to mine the logs for lumber; and in consequence of the current sinking the Atlantic is encroaching and swallowing or destroying estates and homes to the value of many thousand dollars annually. The subsidence

of the Gulf coast is less confidently known; but the geologic indications are that it is (at least between Mobile Bay and Galveston Harbor) nearly as rapid as on the New Jersey coast, and more rapid than on the Netherland coast, at least since the building of the dikes; so that the rate cannot justly be estimated at less than a foot per century. Naturally this rapid subsidence has resulted in other catastrophes it were folly to forget: Witness the swallowing of L'Isle Dernière, a health and pleasure resort of New Orleans, with most of its transient population—"the wealth and beauty of the Creole parishes"—just 44 years before Galveston; witness, too, the record of personal observation on the Louisiana coast by the brilliant word-painter Lafcadio Hearn: "The sea is devouring the land. Many and many a mile of ground has yielded to the tireless charging of Ocean's cavalry. Far out you can see through a good glass the porpoises at play where of old the sugar cane shook out its million banners, and shark fins now swim deep water above a site where pigeons used to coo. . . . Grand Terre is going; the sea mines her fort, and will before many years carry the ramparts by storm. Grand Isle is going, slowly but surely; the Gulf has eaten three miles into her meadowed land. Last Island has gone!" Witness, also, Engineer Corthell, the successor of Eads in some of the most remarkable engineering enterprises of the century (in this Magazine, volume VIII, 1887, page 352): "On Belize Bayou . . . stands an old Spanish magazine, built over 200 years ago. At the time of building the jetties at the mouth of the South Pass [1877] this magazine was . . . standing perfectly level, but with the surface of the water stretching across the arch which crowned the entrance door, the sill of which must have been at least 10 feet below the water. . . . Nineteen years later a part of the structure had been removed, but enough of the roof and arches remained to show that the subsidence had continued steadily . . . at about the same rate as during the preceding 200 years. It may be stated that this rate . . . is . . . about one-half of one-fourth of a foot per annum." And let it not be forgotten that of all localities on the Gulf coast Galveston is most exposed; it is the last of the great natural embankments of the west coast remaining unsubmerged, and hence is open to a wider range of gales than any other; it is the point of contact between opposing forces, the land subsidence on the one hand and wave-building on the other hand, just as was Sabine Bank in its day—but, like that bank, it is bound to be overwhelmed by

[illegible] of the few great forces of nature to which [illegible] must bow.*

These physical lessons are [illegible] as they are beautiful.

[illegible] which [illegible] permanent and pervading as the physical lessons are critical and [illegible]. When the stricken city called out to her sister, and appeal was made to [illegible] was no other appeal to be heard; when a few brave boys were [illegible], and five million dollars poured their gold, or sought for means of succour, sympathy enriched by sacrifices. Evidences of the perfect solidarity of a nation [illegible] by the [illegible] of liberty and equality were not wanting before. [illegible] for the city of Galveston, the State of Texas, and the first Republic of America to produce the world's highest example of charity growing out of the community of interests. Not [illegible] a wave of war passed [illegible] within a few hours more numerous [illegible] than the loud up nations of Europe proved that the appeal and a loud response [illegible] the glorious [illegible] demonstrated the solidarity of nations and the unity of all mankind in a manner [illegible]

[illegible] that the city no longer [illegible] Mississippi and Atlantic and [illegible] of God but forms a [illegible] integral part of a nation, that its [illegible] and failures, and the consequences of its wrecks or [illegible], [illegible] on its own [illegible] are [illegible] of [illegible]; and that, just as every city is [illegible] to appeal for sympathy, so it is morally sound to stand against disasters which [illegible] a nation.

The [illegible] of Galveston in [illegible] their homes can be [illegible], in planting the city within reach of the waves, [illegible] the [illegible] religious [illegible] account; they have been forgotten [illegible] faithful and [illegible] were city-makers before [illegible] it has been [illegible] as they turn toward the future, but charity should not be stinted, and that their fellow-citizens [illegible] world [illegible] upon their devastated and desolate [illegible]

[illegible]

[illegible]

Professor of Meteorology, [illegible] & the New Orleans

The United States Weather Bureau at Washington will shortly [illegible] a [illegible] on West Indian hurricanes, which will be [illegible] observed records of more than four hundred years [illegible]. The record begins with a storm which visited [illegible] on Friday May 24–31, 1494, and describes many of the great hurricanes which have swept the Antilles and the Atlantic and Gulf coasts of North America during the last two hundred years. It is a record of appalling [illegible] in the West Indies, and presents as its crowning horror the [illegible] which caused a loss of more than [illegible] and a destruction of property to the estimated value of $[illegible], [illegible] Texas, September 8, 1900. A detailed description of this [illegible] points along its path. Sufficient data are [illegible] to permit a study of the more important features. The track of the hurricane and the general meteorological conditions which attended it on the mornings of September 8, 9, and 10 are shown on the accompanying chart.

The presence of a disturbance in the vicinity of the Windward Islands of the West Indies was indicated by reports of the charting [illegible] hurricane moved westward over the Caribbean Sea and on the night of the 8th recurved northward over western Cuba. By the morning of 9th [illegible] the center and reached the southern [illegible] coast. There for [illegible] the storm [illegible] and followed a [illegible] northwestward over the Gulf of Mexico. The storm center reached the Texas coast line in the afternoon of September 9, where it recurved northwestward [illegible].

The maximum wind velocity recorded at Galveston was 100 miles an hour from the northeast at 4:15 p. m., [illegible] miles per hour, and

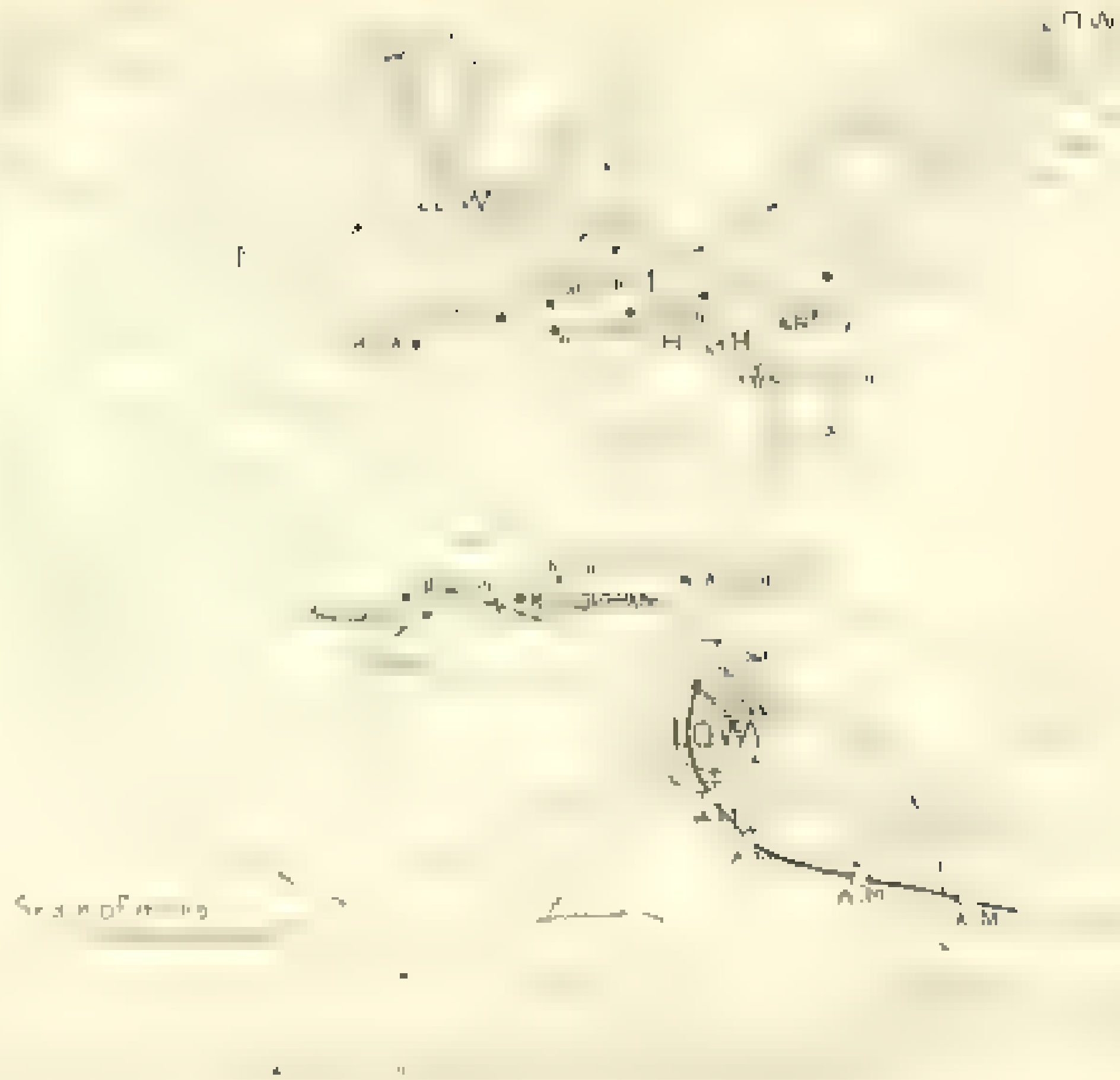


Chart No. 2 Accuracy Test of Wave Period Indicator and Sign

he observer reports a greater velocity from the southeast after the anemometer had been blown away. The lowest barometer reading indicated by the barograph was 28.53 inches at 8.10 p. m., meridian time, at which hour the vertex of the hurricane passed Galveston. The tide, which came in rapidly during the afternoon and the early portion of the night, covered the entire city to a depth of six to fifteen feet, and swept the southern and eastern [illegible] the city entirely away. The water be[illegible] p. m. of the 8th, and by the morning of the 9th high portions of the city were dry.

Following its northward course, the disturbance advanced northward over Texas, Oklahoma, and eastern Kansas, and arrived in Iowa the morning of September 11. During its passage over the interior of the country on the 9th and 10th, the storm was weakened [illegible], and the ultimate dissolution was probably averted by the advent of a low barometer area from the northwest, which recruited its wasting forces. Thus strengthened, the storm [illegible]

[illegible]

Valley and thence over Newfoundland, constantly increasing in intensity. It then disappeared beyond the region of observation, having described a curved path more than four thousand miles in length.

As a satisfying description of storms requires a reference to their rela-

[illegible]

atmospheric movements and causes the varying degrees of intensity [illegible] the following statement of these conditions, made by the writer some years ago, is reproduced:

The course of storms in the West Indies and over the Gulf of [illegible]

[illegible]

especially on the distribution of atmospheric pressure. The anticyclone or high pressure area of the North Atlantic Ocean [illegible] east of the West Indies and causes east to northeast winds over the Southern Atlantic Ocean and the Caribbean Sea. These are the northeast trade winds. The storms that develop in the region east of the West Indies and also those of a more western origin, have a tendency to follow the course of the main equatorial current over the Caribbean Sea. This course is doubtless largely influenced by the general drift of the atmosphere in that region, and, following the anticyclonic circulation of winds, the hurricanes skirt the western quadrants of the Atlantic high area and, carried by the trend of the

[illegible] the south eastern coasts of the United States. As a consequence of [illegible] combined the normal course of West Indian storms which has been [illegible] northward, or in some of them over the Atlantic Ocean and the United States. Some of the more important storms of the West Indies have not recurved northward, but have moved westward over the land of Mexico or dissipated over Mexico or the southwestern states. In such cases persistent high barometric pressure to the northwestward covering the normal line of advance has apparently prevented a recurve.

Observation has shown that storms are more or less erratic in the [illegible] where they recurve or attempt to recurve abnormally. Observation has also shown that when the barometric pressure is [illegible] and of a low type by reason of high pressure, the storm [illegible] greater [illegible] or an abnormal course. Among notable [illegible] of this class may be mentioned the hurricane of August, 1915 which totally destroyed Galveston, Texas, and the hurricane [illegible] Cuba. These storms were apparently unable to recurve owing to high barometric pressure in the northwest. Farther westward, over [illegible] of the Rocky Mountains and the other over Mexico.

It will be observed that the storm of September, 1938, was in two [illegible] sharp or normal turns in its course, and that manifestation of increased energy attended these recurves. It will also be noted [illegible] other storm on the southwestern coast. The source of the first of these recurves was the northern Pacific Ocean, and the date was September [illegible]. A reference to the chart of the morning of [illegible] shows the high pressure. [illegible] and [illegible] barometer and an area of low barometer was crossing the [illegible] coast. It was a self-evident fact that excessive speed on the part of the northwest depression would result in a failure on the part to coalesce

the Atlantic coast high barometer area and flows rapidly eastward.

It was recognized that these movements would prevent a repetition of the storm along a normal line of advance and would cause it to assume a westerly course over Louisiana. The chart of the Department shows that the latter assumption was the correct one, and the [illegible] forecast was given the Galveston district.

On the morning of the 7th the storm was centered south of the [illegible]

[illegible] of storm warnings would have overwhelm Galveston Island with waves of unprecedented magnitude from [illegible] confined the bay.

Confirmatory reports of observations at Galveston were received from the [illegible] received a velocity of 100 miles an hour, was equally important as a [illegible]

Long before experienced in Galveston began to run in from the [illegible] opposite the wind. This was a storm wave produced by the southerly [illegible] northerly gale on the inner side of the island.

From available information it appears that the barometer reached its lowest intensity and the water the greatest depth about 8 p. m., 7th, local time. After the passage of the barometric center the wind shifted to east and north, the storm waves from the [illegible] beach surfaces which were retarded to the place from which they came.

The geographical [illegible] and the topography of Galveston Island [illegible] the presence of storm storms, particularly [illegible] to [illegible] In fact, most [illegible] of attack in the [illegible] of [illegible] or by waves which have run around or to the rear of a barometric [illegible]. On September 8 both of these causes contributed to the overflow of the island. The storm wave from the Gulf combined with the [illegible] of a gale which swept over the entire [illegible] of water surface in the [illegible] strip of sand which [illegible] Galveston Island. The tracks thus

[illegible]

tory of the United States.

Assuming that the [illegible] of the Babylonian empire [illegible] to be [illegible]

But point was of almost unprecedented severity [illegible] the future possibility in a like visitation is that society is extremely remote.

EXCAVATIONS AT NIPPUR

Many important discoveries have been made during the past eleven years by various expeditions excavating at Nippur under [illegible] of the University of Pennsylvania. Nippur has [illegible] met with [illegible] attention in the [illegible] of Europe.

[illegible]

But the second year [illegible] the most extensive and varied in [illegible] yet made.

These discoveries are [illegible]. The library of the great temple at [illegible] covered with cuneiform writing have been taken out, and Professor Hilprecht, the able leader of the party, asserts that 150,000 additional tablets are waiting to be uncovered. These tablets are of special value because of their historical character; upon them are written in [illegible] and lines of the ancient wisdom of the Babylonians and there are lines of astronomy, [illegible] astronomy. The library was of great renown in early Babylonian [illegible] it was [illegible] great collection of law in [illegible].

Under 70 feet of rubbish, [illegible] of as many centuries, [illegible]

[illegible] of Nippur. In one rooms excavated, pre-[illegible]

[illegible]

[illegible] times.

HONAN—THE CLOSED PROVINCE OF CHINA

By William Barclay Parsons

Of the eighteen provinces which constitute the Chinese Empire

of east longitude, a province with an area of nearly 50,000 square

of the development of the natural resources of China has been considered, the province of Honan has been regarded as one of the great objectives of the railway and mining promoters as a result of its well-known wealth in coal and iron, combined with the fertility of its soil, and the enterprise of its people. The people themselves, however, are the most conservative and conservative of the Chinese, whose empire has succeeded in keeping their province practically free from invasion by foreigners or even foreign ideas.

In 1871 Baron Ferdinand von Richthofen, the great German geologist, to whom we are

therefore the information that he obtained was very limited. Three

entered, the capital of the province, Kaifengfu. In 1895 Mr. J. Morrison and Langdon Warner, travelled from north to south across

the first

In the winter of 1898–'99, the writer, related as a mining engineer of the

Honan was, of course, a land. In the active work he was constantly

asked: "Why do you not develop the coal mining for the great railroad?"—a

length of line, as actually run, of 7[illegible] miles—together with reconnaissance work for about [illegible] miles more. As the result of this survey he has been able to [illegible] the [illegible] character of the striking features of the geography and topography of the eastern part of the province of Hunan, and present the first correct map yet published for [illegible] a large area in the province.

The province is watered by two streams—the Siang and the Yuan. They meet at the northeastern corner of the province and flow into the Yangtze, forming the most important tributary that the Yangtze receives from the south. The Yuan, the lesser of the two, rises in the province of Kweichau and flows easterly across the northwestern corner of Hunan and joins the Siang in the Tungting Lake, a large area which in the winter is dry, except for the beds of the streams, which are cut into a channel to a depth of about 20 feet. In the summer time, when the river rises, the whole area is flooded, forming the lake. The Yuan, with its tributaries, drains approximately 27,000 square miles, or about one-third of the province, the remainder being drained by the Siang. The Siang rises in the southwestern part of Hunan, flows in a general northeasterly direction, and drains the north slope of the Nanling Mountains, which form the watershed

[illegible]

lake with the Yuan and with the Yangtze

[illegible]

ture of Hunan was north and south. I am following the trend from

[illegible]

part of the province, but is the great trade route of Hunan, except

[illegible]

access to Kweichow.

[illegible]

residence of the governor and the other provincial officers. This

[illegible] first. It is a walled city of the first class, with an inter-

[illegible]

[illegible] over or finally to Changsha.

[illegible]

[illegible] no [illegible] Chengtu has become the great market for the southern part of [illegible]

[illegible], the most populous and flourishing [illegible] [illegible] more than should be needed on the list as a place of contact [illegible]

[illegible] Lai stream

The accompanying map shows the results of a careful instrumental survey from the Tangtung Lake at [illegible] to where it receives the waters of the Lai [illegible] the tributary, the [illegible] the Nu [illegible] The location of the river [illegible] and [illegible] of the principal cities [illegible] banks is also given. [illegible] the most [illegible] the presumed [illegible]

The swing river, like [illegible] in the [illegible] is subject to [illegible] and the low period in December [illegible] During the latter far as navigation [illegible] depth being governed by frequent shoals. The [illegible] half foot. On the [illegible] the length of water [illegible] to one foot to second in the winter time to [illegible] In the summer time the [illegible] waters [illegible] gave a depth of from [illegible] to [illegible] feet above the normal water stage.

[illegible] require a large amount of [illegible] dredging and [illegible] an [illegible] expense to be [illegible] kind of work to [illegible] a channel and [illegible] measurements due to a great rate [illegible] fall in the river bed. [illegible] dredging of a [illegible] would probably cost [illegible] than

[illegible] of the river [illegible], of course, for a vast [illegible] satisfactory modes of communication.

To the east of the Yangtze Valley, there is a strong low [illegible] at a distance, and set back from the river. As one follows up Siang [illegible] these

remarkable peculiarities in their character are more continuous in their formation, and gradually contract toward the summit. The remaining [illegible] these rise directly from the river itself, leaving not a square [illegible] of arable [illegible] along the river except [illegible] small streams flowing into it. The Yuan and the [illegible] small streams

[illegible] from [illegible] to [illegible] feet above [illegible]

The southern half of the [illegible] east and [illegible]

to the fact that the Chinese would not [illegible] to [illegible]

gather from the natives.

The geological structure of the country is [illegible], the

[illegible] has [illegible] up the coal deposits as to render them of [illegible]. In other localities, however, the [illegible] has had less [illegible], and coals are found [illegible] a hard

[illegible] such a chemical composition as to permit of their use in blast furnaces.

There are three well known passes in the Nanling Range, [illegible] trade routes [illegible] between [illegible] North [illegible]. The

[illegible] can [illegible] be [illegible] 2,000 feet [illegible]

The western one is at the [illegible] of the Siang [illegible] and of the

[illegible]

possible to go from [illegible] in Sze-chuen [illegible] Yangtze Valley by boat. The Kan [illegible] leads down the province of Kwangsi into the West

[illegible]

[illegible]

[illegible] feet. The instrumental survey made under my direction determined the elevation to be 1,[illegible] feet, which possibly represents the [illegible]

[illegible] At Changsha. As soon as I began the work of reconnaissance [illegible] I was engaged, in order to make out the best route for the survey to be followed, I observed that the Chinese [illegible] along the [illegible] three miles to the north of the present [illegible] at an elevation of somewhat more than [illegible] feet lower.

The rock formation of the range itself is limestone, and, although [illegible] is almost entirely deserted, by the existence of five extraordinary [illegible] barrier. It was only after obtaining the same experience, whence it [illegible] [illegible] of mountains by a westerlydirected branch 1,000 feet across. At this [illegible] are larger, being about 150 feet high and 1,000 feet apart. The valleys of the Yangtze and Chinese [illegible] [illegible] range in my province of [illegible] at the greatest elevation I was able to [illegible]

[illegible]

and Hunan now into the Chang Sha, 300 miles away.

[illegible]

stretched between Canton and Central China with an elevation of [illegible]

[illegible] is about 7 [illegible] miles. At this distance [illegible] and there a great out-reaching in relief of land per mile, that rule being used crossing the spurs as they jut out to the Siang or the Pei River. The range itself can be crossed by five passes, each of which is of assured importance and necessitating a [illegible] for the construction of a railway.

In Eastern Asia the [illegible] variation is great. At Hankow the variation was found to be [illegible] at Canton 20° W. We located the line of no variation just after crossing the Nan Ling Range.

Soon after from the Nan Ling Ranges at the Meiling Pass flows the Pei River and south from the Lotting Pass flows the West River, the two rivers joining at Shanchang [illegible] stream taking the name of the Pei River, which it retains [illegible] go out to sea at the West River at Canton.

Kwangtung has been explored by foreigners, and the larger part of it has been carefully mapped, certainly as to the most accessible. I am not aware that an actual survey of the West River has been previously made, but its correct course is shown on the map which [illegible] on the map is one of the oldest and most [illegible] routes [illegible] the country, of which no accurate and authentic information was [illegible] railways, and will be one of the great factors in the mining industrial development of China.

NATIONAL GEOGRAPHIC SOCIETY

[illegible] for the sum of [illegible] I was [illegible] only one [illegible] lectures instead of three as heretofore, but to compensate we have the privilege of purchasing one extra ticket, and taking one person, for two [illegible] of charge. This concession has been accepted [illegible] certain recommendations made by [illegible] of the committee in charge [illegible] of the Board for the information of members.

[illegible]

MANAGERS, JUNE 1 [illegible]

[illegible]

[illegible] to take [illegible] all who are interested in geographical science.

[illegible]

[illegible]

As we only [illegible] in touch with outside [illegible] through the National [illegible] MAGAZINE, it seemed to be the part of w[illegible]

[illegible]

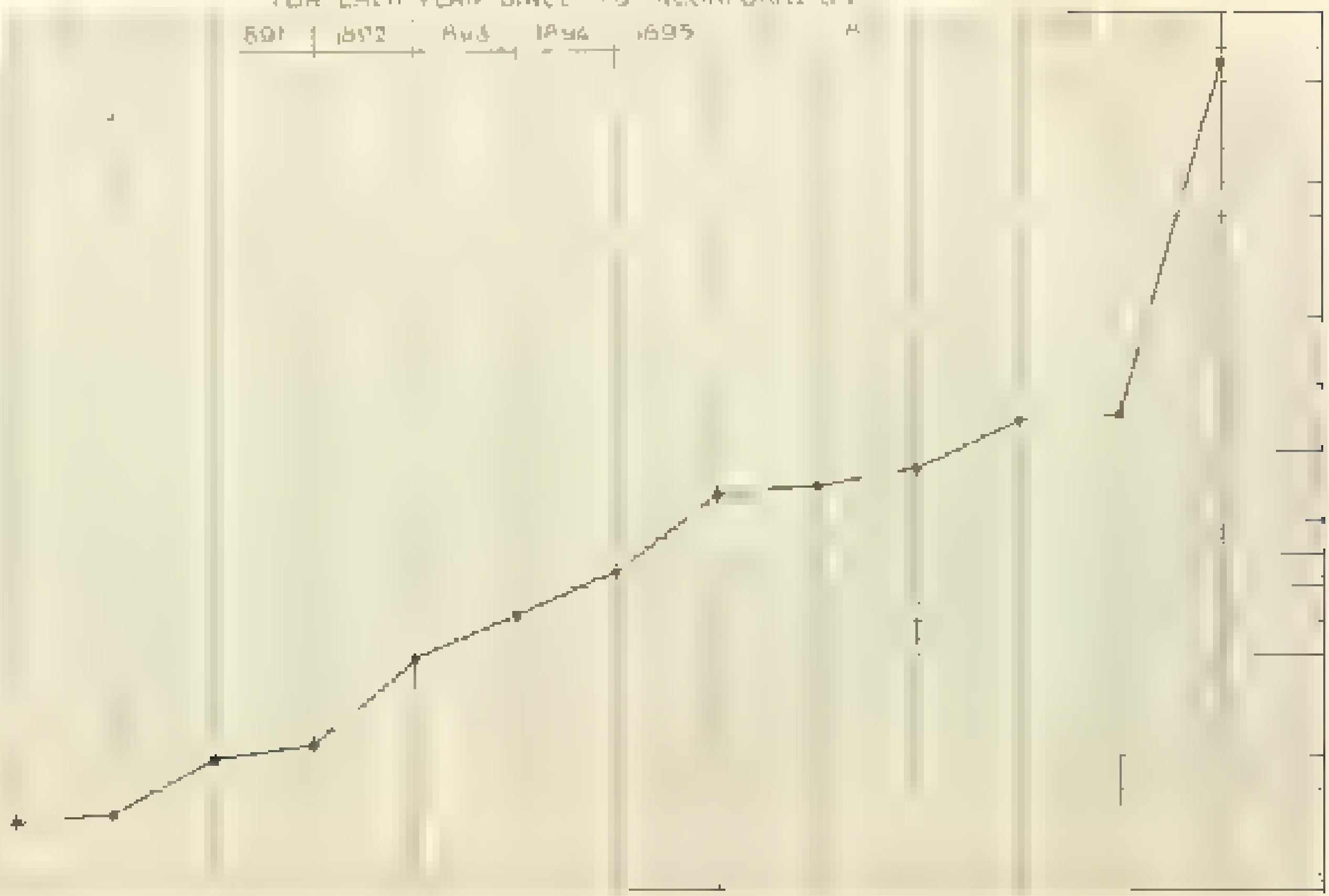
[illegible] composed of [illegible], having their primary work in the [illegible]

[illegible] and, as an experiment, that arrangements should be made [illegible]

[illegible] year of trial has passed, and we have now to consider the results. *Firstly*, [illegible] to the *Magazine* [illegible] are to be congratulated [illegible] the fact that they are now able to get the Magazine out on time, so that it is now received along with the other monthly periodicals [illegible]—and *secondly* [illegible] *increase of interest* [illegible] general of the longer articles [illegible] scientific press [illegible] recognised very generally by the press of the country and it [illegible]

The Magazine is undoubtedly exerting a greater and more widespread influence [illegible] than ever before.

MEMBERSHIP OF THE NATIONAL GEOGRAPHIC SOCIETY
FOR EACH YEAR SINCE ITS INCORPORATION



Now, as regards membership. The graphical chart on the opposite page shows the number of members for each year since 1885.

[illegible]

has almost doubled in a single year (1,417 members in 1899, 2,462 [illegible]

[illegible]

[illegible] results in an increase of the membership great that we may hope in a few years to have thousands of men [illegible] where we now have hundreds, and to establish on a lasting basis [illegible] great national society of which we may all be proud.

[illegible]

[illegible] PROMULGATION in this society, with voting power not limited to residents of Washington, D. C. *Along by the Executive Committee, I find corresponding to 1,000 are on members.*

With this policy in view we may consider various steps which [illegible] bring about such desired result.

NATIONAL EXPANSION

[illegible] to hold their interest.

[illegible]

[illegible] that the societies should be up to date, [illegible] largely with [illegible]

2) Special privileges might be given to members by affording [illegible] tables, geographical works, books of travel, lectures, etc. At least

[illegible]

[illegible] the purchase of books upon special terms.

[illegible] to provide lectures outside the District of Columbia. Our [illegible] have proved to be very attractive to our members and the public generally and enable our audiences. It would be entirely practicable to [illegible] tickets at less prices than are paid at [illegible].

It is perfectly certain to me from the experience of the past few years of travelling [illegible] the rate it has done this year, and that unless special efforts are made to push the membership, and it is [illegible] our experience in this direction that encouraging and persistent efforts will be rewarded with success, but they must be [illegible] and persistent. The membership curve is too slender to last, [illegible] difficult to put it up higher.

RECOMMENDATIONS FOR FUTURE NEW IMPROVEMENTS, ETC.

I would also suggest, as a measure not for immediate adoption, that [illegible] be made between active and corresponding members. Let all [illegible] expression of the Society, with the exception of lecture courses, [illegible] made to pay for themselves and yield a revenue to the Society to the end for the promotion of original research.

The object of this Society is "the increase and diffusion of geographical knowledge," but very little is done to increase it. Our lectures have been so popular as to overshadow the scientific work of the Society. Even our technical courses have been so largely attended as to prevent [illegible]. We have been [illegible] and we have found [illegible] to be the image of a technical conference similar to those held by other scientific societies.

I would urge upon the Board the advisability of [illegible]

[illegible]

[illegible] to promote the advancement of geographic knowledge.

In spite of our large membership, we are in so poor a condition [illegible] our society. We have, as it were, from hand to mouth, and have been [illegible] difficulty in making both ends meet. This condition of affairs is [illegible] dangerous and [illegible] to the existence of the society. In order to place it absolutely in [illegible] funds and without a [illegible] and hope to do much toward promoting geographical research,

I would [illegible] to the Board the importance of taking to [illegible] the [illegible] for this purpose.

[illegible] are [illegible] and other [illegible] of [illegible], [illegible] to yield a profit to the Society. The proceeds could be [illegible] over as a [illegible] for an endowment to form a fund for the [illegible] as directed by the [illegible] of the Society.

These [illegible], of course, are not [illegible] in character, [illegible] and discuss on. I bring them forward now in order that the [illegible] Society in May, 1891, if they think best.

[illegible] AND ON THE IMMEDIATE CONSIDERATION

[illegible] This [illegible] has happened that our membership has been [illegible] passed in considerable part of persons who are not members of the [illegible]

[illegible] order that there should not be too sudden a change in the [illegible] receive membership fees which is intended to cover the [illegible]. In the [illegible]

[illegible]

of [illegible]

[illegible]

[illegible]—the entire amount of these dollars was charged for the [illegible]

for each lecture was only five cents.]

[illegible] proper amount than ten.

A HOME FOR THE SOCIETY IN WHICH TO ESTABLISH NATIONAL

[illegible]

erected this year and offered for the use of the Society

[illegible]

[illegible]

everything seems available to the establishment of the Society [illegible]

[illegible] with a view of representation [illegible]

[illegible] of any recommendation [illegible]

Dana.—I hold the principle [illegible] on *National Expansion*, with the [illegible] [illegible] Washington [illegible] [illegible] [illegible] [illegible] found

RECOMMENDATIONS REQUIRING IMMEDIATE ACTION

[illegible] should be [illegible] to devote [illegible] whole time to the interests of the [illegible] [illegible] the Board;

2. Act to [illegible] [illegible] ticket to admit only one person to lectures; [illegible] ticket for lectures for three [illegible] (This has been adopted by the [illegible] two dollars instead of three.)

[illegible] courses in other cities than Washington [illegible] tickets for these [illegible]

[illegible] report. Marcus Baker, F. H. Newell, W. H. Powell.)

RECOMMENDATIONS NOT REQUIRING IMMEDIATE ACTION

1. Lower the membership fee for active members and remove it to [illegible]

[illegible]

[illegible] research.

[illegible] the research fund to be applied as directed by them.

Respectfully submitted,

ALEXANDER GRAHAM BELL,
President of the National Geographic Society.

THROUGH THE HEART OF AFRICA

In the autumn of 1898 two young Englishmen, Messrs. E. S. Grogan and [illegible]

[illegible] of pasturage.

[illegible] breeding a long horned cattle," were divided into two classes—the Watusi, the [illegible]

[illegible] and among the [illegible] Watusi."

North of Lake Kivu is a region of volcanoes, two of which are still active. From reports from the natives Mr Grogan believes that one of the latter was formed during a terrific eruption only two years before his arrival. The stream of lava flowed for a distance of 30 miles, engulfing the forest with which the valley was clothed, in many places piling up the lava debris to a height of 50 feet. "The natives informed me," Mr Grogan writes, "that whole herds of elephants were destroyed. I myself saw the bones of one that had been forced up to the top of the edge of the stream."

In the plain to the north of Kivu, in the pass between the two blocks of volcanoes and on the slopes to the north, owing to the porous nature of the ground, there is no water; yet in spite of this there is an enormous population, the necessary water being obtained by tapping the stems of the banana palms. The rain is retained by the ground, and consequently the forests that clothe the slopes of the volcanoes are wildly luxuriant and impenetrable to everything but the elephants. When hunting and following close on the tracks of an elephant we had to cut our way with the native axe, without which one cannot move a yard. For hundreds of yards at a time one never touched the ground, but was climbing along the prostrate tree trunks and dense growth, which, of course, the elephant would take in its stride. More desperate work or more dangerous for long it would be impossible to conceive.

In the neighbourhood of these volcanoes a curious type of mankind was observed, tall, with long arms, tremendous paunch, and the short legs of the ape. "When exploring with a small number of followers I observed some ape-like creatures leering at me from behind banana palms, and with considerable difficulty my Ruanda guide induced one of them to come and be inspected. He was a tall man, with long arms, pendant paunch, and short legs of the ape. At first he was terribly alarmed, but soon gained confidence, and when I asked him about elephant and other game he gave me most realistic representations of them and of how they should be attacked. I failed to exactly define their social status, but from the contempt in which they were held by the Waruanda their social caste must be very low. The stamp of the brute was so strong on

[illegible] I have seen in Africa. Their type is totally distinct from the other peoples [illegible] as the gorillas.

[illegible] they have had to struggle for existence. The true type of pygmy is a [illegible] of one of these creatures, and to study them it is necessary to go stealthily, this obviously entails great risk, and it is consequently very difficult to find out much about them. They both have the furtive way of looking at you [illegible] characteristic of the wild animal, and though I had one of these creatures with me for a week when I was in the district of the volcanoes, he would always [illegible] a corresponding [illegible] he refused an offer of cloth for his services, and suddenly vanished into the forest without a word, though several times afterward I found him watching me even when I had returned to my camp on the slopes of Mount [illegible].

Mr. Grogan had further experiences with another type of natives later in his journey.

"The Baregga, who inhabit the hills near the forts, and who were suffering terribly from the effects of the long drought, looked upon me as a great institution, and swarmed down in hundreds for the meat as [illegible] in the lands. A weird sight it was. Stark-naked savages, with long greased [illegible] at work on the carcases, hacking away with their knives and spears, [illegible] rushing in and out of the [illegible] like so many prairie marmots, and men [illegible] themselves with [illegible], laughing and fighting; pieces of [illegible], strips of hide, vast bones, hunks of meat [illegible] and a few clean, white-looking vultures perched [illegible] beyond."

Vast herds of elephants were met in the swamps of the [illegible] region, through which the route lay for several hundred miles. Often they formed

ments both ornamental to our men, as they refused to part one of the war [illegible] tary and tuskers and cords of young elephants. Skulls and tusks of hippopotami lay in every direction, but other game was scarce. The mosquitoes were a plague, and nearly half of my boys were laid up sick, and the flies by day were even worse."

"The Dinkas have enormous droves of cattle, which they value very highly; they never kill them for food, but from time to time tap their blood, which they drink greedily. They are of enormous stature; most of the tribesmen I saw must have been very nearly seven feet, and at every settlement the majority of the men towered above me, while my boys seemed the merest pygmies by their side. They smear themselves with a paste made of wood ashes to protect themselves from the attacks of the mosquitoes, and the long lines of warriors threading their way in single file through the marsh appear like so many gray specters. They are absolutely naked, never having any sort of covering of any kind. Their invariable weapons are a long club made of hardwood or ivory, a fish bone, and a broad-bladed spear, and the chiefs wear enormous ivory bracelets. The women of the Dinkas cut their hair like a man's, and the northern Dinkas wear their hair like a mane. Both sexes [illegible]. Their one mode of showing respect is by turning on one a part of their attention."

Cairo was reached early in 1901. Only twice was Mr. Grogan compelled to take life, both times in self-defense.

NANSEN'S "FARTHEST NORTH" ECLIPSED

The young Duke of Abruzzi, Prince Luigi Amadeo of Savoy-Aosta, son of the Amadeo who for two troubled years (1870-'73) was called the King of Spain, and a nephew of the late King Humbert, has eclipsed Nansen's "Farthest North." Nansen reached latitude 86° 14', the Duke of Abruzzi 86° 34', while Lockwood twenty years earlier gained 83° 24', which until then was the most northern point ever reached by man. The Duke of Abruzzi came within [illegible] statute miles of the Pole, Nansen 261 miles, and Lockwood nearly [illegible] miles. The Italian prince is the first of the Latin race to cross the Arctic Circle since the days when another Latin, Gaspar Corte Real, of Portugal, in 1500, discovered Hudson Strait and entered it never to return.

The *Stella Polare*, a vessel modeled after the plans of the *Fram*, but smaller and less stoutly built, sailed from Christiania June 12, 1899, carrying the Duke of Abruzzi and some twenty or more men as crew. It is stated that half a million francs had been lavished on the equipment (see NAT. GEOG. MAG., vol. x, p. 213). In latitude 82° the ship was forced by the ice in Teplitz Bay on to the land. One side had been crushed in, and it had filled with water, and all attempts to staunch the leak had been futile. A big tent, constructed from [illegible] which the party had brought out, then, was pitched upon the land, [illegible] Several stoves were set up inside the tent, but though they were kept

at and heat during the whole of the first night there were 17 degrees of frost inside, and even the men's boots were frozen. After the first terrible night, however, they succeeded in keeping tolerably warm and comfortable. The [illegible] under the weight of snow and ice [illegible] sustained [illegible] of the storm.

In the early spring the exploring parties commenced work. Four expedi- [illegible] depots at intervals for the main party which was to follow. They were successful and returned after an absence of a few days. The second party, consisting of a Norwegian machinist and two Italians, never returned. These three men were the only ones lost during the year. The third expedition was [illegible] reached latitude 86° [illegible]

[illegible] of two fingers from the frost compelled him to remain by the ship when the main party started, February 26, 1900. Their first attempt to advance was checked by violent storms, which drove them back to shelter. A few days [illegible] known in America as one of the companions of the Duke of Abruzzi in his ascent of Mt St Elias; [illegible], two Alpine climbers, and one other Italian. On their way back they visited a hut built by Dr Nansen in Franz Josef Land. Cairns were built by them to commemorate the three men who had perished. On gaining latitude 86° [illegible], another [illegible] advanced [illegible] [illegible] week in June. By persistent hard work the *Stella Polare* had been patched [illegible] them to escape. It is too soon to learn the scientific results of the year of exploration, but apparently these were quite satisfactory.

A dispatch from London states that Dr Nansen and the Duke of Abruzzi have formed a partnership and will soon undertake a joint expedition to the North Pole.

GEOGRAPHIC NOTES

[illegible] the physician of the French legation at Pekin, has published a book entitled *Superstition, Crime, and Misery in China*, which contains a fund of facts about the lowest strata of Chinese society. He estimates that there are in Pekin one hundred thousand beggars, one-sixth of the population of the city. They are all members of one society, which is perfectly organized. Their president, by election, is called the King of Beggars, and has absolute authority over all, even to life and death, nor does the government ever question his power over all beggars. The chief beggar divides the city into sections, which are assigned to different subchiefs. Each leader [illegible]

sionally departs, but soon returns with several companions and with increased demands. A fire at night and a total loss of stock and buildings follow a persistent refusal. To escape the pests, many possessors of these regions, shop- [illegible]

at times of funerals or weddings, and their absence may be purchased. They find a lodging where they may. The bed of many is the midden of the [illegible] when trying to sleep. Winter frosts and pests ravage their ranks. In the summer of 1895, when the cholera raged in Pekin, 30,000 beggars perished. During the winter and spring which followed they seemed to have vanished from the streets, so terrible had been the devastation of death among them.

It now appears that Borchgrevink's South Polar expedition did not reach the South Magnetic Pole in the Antarctic winter of 1900, contrary to the first published reports. The party ascertained the position of the magnetic pole, but found an attempt to reach it by sled proved unsuccessful. They found the ice pole different from that of Greenland. In Victoria Land enormous glaciers varying in height from a dozen to 14,000 feet barred advance by sled. Captain [illegible] Antarctic, moved on into Ross Bay until latitude 78° 30' was reached. Here he took to sled again and managed to advance to 78° 50', the nearest approach to the South Pole yet made. He agrees with the scientists of the Belgian Antarctic expedition of the preceding year, which, it will be remembered, was the first to pass a winter within the Antarctic Circle, that the winter is much fiercer in south polar than in north polar regions.

[illegible]

Germans sailed from Hamburg, Bremen, and other ports to settle in new foreign countries, during the preceding year, there were [illegible]. Of these about [illegible] were bound for the United States, 1,978 for Central and South America, and [illegible]

[illegible] preceding year.

[illegible] of Canada. By Walter Dwight Wilcox. With 41 illustrations, including 25 photogravures and 17 half tones, and 3 maps. Large 8vo, [illegible] New York and London: G. P. Putnam's Sons.

Mr. Wilcox is a gentleman of means, who devotes his leisure time and much of his means to travel in out-of-the-way regions and to exploration. He is a surveyor, something of a botanist, a pleasing writer, and a most artistic photographer, and therefore he is able to share with others the fruits of his travels. The present work, which is in part a second edition of his "Camping in the Canadian Rockies," is even more than the former a narrative of [illegible] among the "Switzerlands of America." It closes with chapters on mountaineering, hunting and fishing, and the Stony Indians. The region he describes is the largest, most rugged and finest of Canada's portion of the Rocky Mountain system, a region well worthy the attention of Swiss Alpine climbers when seeking for new mountains to conquer.

[illegible] SOCIETY, SESSION 1899–1900

Special Meeting, November 3, 1899.—Vice-President McGee in the chair. Professor John W. Foster, ex-Secretary of State, gave an illustrated lecture on the American Frontiers.

Regular Meeting, November 10, 1899.—Vice-President McGee in the chair. [illegible]

[illegible]

[illegible]

[illegible]

Special Meeting, December [illegible], 1899.—Vice-President McGee in the chair. Prof. [illegible], of the U. S. Geological Survey, gave an illustrated address on the glaciers of Alaska and the Harriman Expedition.

Regular Meeting, December 8, 1899.—Vice-President McGee in the chair. [illegible]

[illegible]

Special Meeting, December [illegible], 1899.—Vice-President McGee in the chair. [illegible]

[illegible]

Regular Meeting, December [illegible], 1899.—Vice-President McGee in the chair. [illegible] Dr. [illegible] on Salt River, Arizona, and the Irrigation Possibilities of Tonto Water-shed.

Regular Meeting, January 5, 1900.—President in the chair. Geo. [illegible] Fitzer, of the Bureau of American Ethnology, gave an illustrated lecture on Central South Africa and the Transvaal.

Special Meeting, January [illegible], 1900.—Vice-President McGee in the chair. Mr. Edwin T. Morgan, Secretary to the Samoan Commission, gave an illustrated lecture on the Samoan Islands.

Regular Meeting, January 19, 1900.—President Bell in the chair. Mr. [illegible] Dutton, of the U. S. Geological Survey, gave an illustrated lecture on the Black Hills and Northwestern Dakota.

Special Meeting, January [illegible], 1900.—President Bell in the chair. Hon. Thos. C. Washburn, of the Philippine Commission, gave an illustrated lecture on the Visayas and Palawan.

Regular Meeting, February 2, 1900.—President Bell in the chair. Dr. Frank Russell, of Harvard University, gave an illustrated lecture on the northern Indians of the Arctic Coast.

Special Meeting, February 9, 1900.—Vice-President McGee in the chair. Mr. Wm. Hawkins Ferry, C. E., gave an illustrated lecture on Engineering Problems in the Yangtze.

Regular Meeting, February 16, 1900.—Vice-President McGee in the chair. Dr. Geo. M. Sternberg, Surgeon-General, U. S. Army, gave an illustrated lecture on the Western Philippines and Experiments in Tropical Hygiene at the Manila Pharmacy.

Special Meeting, February [illegible], [illegible]. President Bell in the chair. Hon. W. [illegible] gave an address and lantern slides on the Hopi Indians.

Regular Meeting, March [illegible], [illegible]. President Bell in the chair. Prof. [illegible], of Columbia University, gave a lecture on the Geographic Distribution of Social Disease.

Special Meeting, March [illegible], [illegible]. President Bell in the chair. Prof. [illegible], of Columbia University, gave an illustrated lecture on the Growth of the Northern [illegible].

Special Meeting, March 9, [illegible]. President Bell in the chair. Rev. T. S. Wyckoff gave an address on Social and Economic Conditions in [illegible].

Special Meeting, March [illegible], [illegible]. Vice-President Moore in the chair. Prof. [illegible], of Vassar College, gave a lecture on the Formation of Fog [illegible].

Regular Meeting, March [illegible], [illegible]. Vice-President Moore in the chair. Mr. [illegible] Wilds, former Consul-General of the Transvaal at London, gave a lecture on South African Country, People, and Resources.

Special Meeting, March [illegible], [illegible]. Vice-President Moore in the chair. Prof. [illegible] gave an illustrated lecture on the Growth of Austro-Hungary.

Special Meeting, March [illegible], [illegible]. Vice-President Moore in the chair. Mr. [illegible] gave an illustrated lecture on the Northeastern Boundary.

Special Meeting, March [illegible], [illegible]. President Bell in the chair. Prof. John [illegible] Lowell, of Howard University, gave an illustrated lecture on the Growth of Germany.

Regular Meeting, March [illegible], [illegible]. President Bell in the chair. Prof. [illegible] Barrows, of Harvard University, gave an illustrated lecture on the Waste of the Land on the Way to the Sea.

Special Meeting, April [illegible], [illegible]. Vice-President Moore in the chair. Dr. [illegible] of the New England Hospital, gave a lecture on the Growth of Hospitals.

Special Meeting, April [illegible], [illegible]. Vice-President Moore in the chair. [illegible] up the Amazon River to Yurimaguas, Peru.

Special Meeting, April [illegible], [illegible]. President Bell in the chair. Prof. [illegible], of Amherst College, gave an illustrated lecture on the Growth of Hawaii.

Regular Meeting, April [illegible], [illegible]. President Bell in the chair. Mr. [illegible], of the U. S. Geological Survey, gave an illustrated lecture on the Glaciers of Alaska.

Special Meeting, April [illegible], [illegible]. Vice-President Moore in the chair. Dr. H. C. [illegible], of the U. S. Weather Bureau, gave an illustrated lecture on the [illegible] of Mississippi.

Special Excursion and Field Meeting, May [illegible], [illegible]. An excursion was [illegible]

Tuesday morning, May 29. The beach and pier of Atlantic City, on May 28, was observed at Scrofula. New York Sun, Tuesday, and Theodore Roosevelt was also [illegible]

NATIONAL GEOGRAPHIC SOCIETY

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The National Geographic Magazine is sent free of charge to all members of the National Geographic Society.

Recommendation for Membership in the National Geographic Society

[illegible]

I do hereby [illegible] President, [illegible] consent, pursuant to the order of the National Geographic Society, and if [illegible] New York draft or P. O. [illegible]

[illegible]

To the Secretary, National Geographic Society, Washington, D. C.

I hereby propose

[illegible]

for [illegible] membership in the Society

[illegible]

[illegible]

OUR BOOK DEPARTMENT

The Life of the Master

By [illegible] JOHN WATSON [illegible]

[illegible]

Life of Napoleon Bonaparte

By IDA M. TARBELL

[illegible]

The History of the South African War

By A. CONAN DOYLE

[illegible]

The Life of Abraham Lincoln

By IDA M. TARBELL

[illegible]

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